PlanetSpark's AMD Powered EdgeAI Box X7 Helps Developers Accelerate Video Analytics

AMD Zynq UltraScale+ MPSoC Delivers Ultra-Low Latency, Flexibility, and Low Power for EdgeAI and Machine Vision Applications

PARTNER

INDUSTRY
Industrial, Smart City

CHALLENGES
PlanetSpark was looking to build an AI edge box that could handle a high volume of on-premise video analytics for security applications. Among must-have features, the box needed to be able to handle multiple video streams at the same time, and be power efficient, with very good heat dissipation.

SOLUTION
PlanetSpark chose the AMD Zynq™ UltraScale+™ MPSoC devices for its EdgeAI box. FPGA-based solutions deliver the flexibility needed to meet evolving demands and standards. They also deliver ultralow latency and low power consumption.

RESULTS
PlanetSpark's EdgeAI box enables near-real-time insights to deliver an interactive experience and response.

AMD TECHNOLOGY AT A GLANCE
AMD Zynq™ UltraScale+™ MPSoC

PlanetSpark, a Singapore-based AI and IoT integrator, has developed a palm-sized AI edge box (EdgeAI Box X7) using the Zynq UltraScale+ MPSoC device from AMD. This low-latency, low-power box is primarily designed for video analytics and computer vision for smart cities, smart buildings, and machine vision applications.

The EdgeAI X7 box features a long product life cycle, operates in harsh environments—from -30 degrees to 70 degrees Celsius, and delivers wide model support along with a latency-optimized video pipeline that delivers an immersive streaming experience. It provides a user platform where customers can quickly take ideas to proof-of-concept and then to deployment.

Early adopters include system integrators of smart-parking, defect detection in circuit inspection, people counting , and other computer vision solutions.

CHALLENGE

Believing that the post-COVID environment will lead to greater deployment of security cameras for crowd monitoring, traffic monitoring, and building access and security, PlanetSpark set out to build an AI edge box that could handle a high volume of on-premise video analytics.

Among must-have features, the box needed to be able to handle multiple video streams at the same time, and be power efficient, with very good heat dissipation.

The solution also needed to be customizable.

"Today's customer requirements vary from one customer to the next," said Joseph Lee, head of the Venture and Solutions marketing team at PlanetSpark. "This means that customization is very important."

The company decided that an FPGA-based solution was the answer, though it was the company's first foray into FPGAs.

SOLUTION

PlanetSpark chose AMD Zynq™ UltraScale+™ MPSoCs for its EdgeAI box. FPGA-based solutions deliver the flexibility needed to meet evolving demands and standards. They also deliver ultralow latency and low power consumption.

"Because FPGAs are flexible and reprogrammable, we can customize the design even as the AI model keeps evolving and changing," said David Wang Qing Sheng, vice president of Excelpoint Technology. Ltd., whose investment arm is PlanetSpark. "AMD's hybrid solutions combine multiple processing cores on an FPGA-based architecture that can adapt to these changing market needs."

Wang said that AMD provides both the hardware (FPGA fabric) and software

(AMD Vitis™ AI development environment) which PlanetSpark now recommends to developers. "These are the key differentiators that make the starting journey a palatable one for our downstream partners and customers."

He added that the Vitis AI model helps guide customers on their initial design selections, and also provides an "indispensable library" of APIs and other assets.

PlanetSpark's Joseph Lee shows off the EdgeAI Box X7, powered by the AMD Zynq MPSoC.

Wang said that the design experience with AMD has been very good. "AMD has provided great support from the global team in various aspects of hardware, software, and middleware design," he said. "AMD has helped us be successful by providing us with good support from the global team in the initial hardware bring-up and through ongoing support when we encountered issues we had not seen previously."

Lee also noted that AMD's guidance was critical for the EdgeAI Box X7's success. "This was our first time working with FPGAs and the learning curve was very steep," Lee continued. "Fortunately, AMD arranged a lot of global support for our team. This is something we appreciated very much."

RESULT

Lee said that PlanetSpark's EdgeAI box enables near-real-time insights to deliver an interactive experience and response. The solution is stackable, meaning that in some applications like smart parking, "users could replace several GPUs with the EdgeAI box and perform video analytics with lower latency across more cameras in a smaller, cheaper, and more power-efficient footprint."

"When we consider platforms to align to, we consider the longevity of the product lines. We want to go forward and not just stop at one product. The product lines need flexibility to protect our long-term investments. The knowledge that AMD has imparted on our R&D team is something that we want to continue to evolve and deepen our roots in FPGAs," he said.

"AMD sets the gold standard for FPGAs and adaptive computing, and we want to continue to align ourselves with them," Lee said.

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About PlanetSpark

About PlanetSpark
PlanetSpark is an investment arm of Excepoint Technology Pte. Ltd. that provides a platform for early- to mid-stage IoT startups throughout Asia. Excelpoint Technology and its subsidiaries are one of the leading regional business-to-business platforms providing electronic components, engineering design services, and supply-chain management to OEMs, ODMs, and electronics manufacturing services in the Asia Pacific region For more information, visit https://planetspark.io.

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